INFORMATION SHEET

ORDER NO.
SACRAMENTO RENDERING COMPANIES
RANCHO CORDOVA RENDERING PLANT
SACRAMENTO COUNTY

Sacramento Rendering Companies operates a rendering plant that processes livestock carcasses, meat and poultry processing by-products, and grease from restaurants and other food service businesses. Air leaving the condenser is treated to remove odor-producing compounds using a Venturi scrubber and a thermal oxidizer. Other scrubbers treat air exhausted from the plant building to reduce objectionable odors.

Wastewater generated by the rendering plant consists of moisture from animal by-products, water separated from grease, condensate from the cookers, contact water from the scrubbers, plant sanitation wastewater, water softener reject, boiler blowdown, and storm water runoff from the processing plant loading dock. Current daily wastewater flows are approximately 100,000 gallons per day (gpd). The wastewater contains high levels of biochemical oxygen demand (BOD), ammonia, and dissolved solids.

Process wastewater is pumped from a settling sump to an equalization tank, a pre-skimmer unit, and a dissolved air flotation (DAF) unit. The DAF effluent is discharged to the facility's wastewater pond system consisting of a pumping station, flow meter, eight small lagoons (known as the finger lagoons), two winter storage ponds and two mixing lagoons. The wastewater is used to irrigate approximately 74.8 acres of pastureland owned by the Discharger during the dry season only.

During the rainy season (16 October through 14 April), effluent from the finger lagoons is pumped to Winter Storage Pond 1, which can overflow to Winter Storage Pond 2. During the dry season (15 April through 15 October each year), wastewater is conveyed from the Winter Storage Ponds and the finger lagoons to the Back Mixing Pond for pasture irrigation. The Back Mixing Pond also receives tailwater from the irrigated pasture. The Back Mixing Pond can be used to pump wastewater to both the back (southern) pasture areas and the Front Mixing Pond. The Front Mixing Pond is used to pump wastewater to irrigate the front (northern) pasture areas. Fresh water from the irrigation supply wells can be pumped to the mixing ponds or used to directly irrigate the pastureland. The Winter Storage Ponds are typically empty by August each year.

The front pasture consists of Fields 1 and 2, with a total area of approximately 12.8 acres. The back pasture consists of Fields 3 through 5, with a total area of approximately 62 acres.

The Discharger plans several operational changes that will increase wastewater generation rates to approximately 150,000 gpd as an average daily flow. The BOD and total Kjeldahl nitrogen (TKN) mass loading rates to the DAF unit are expected to increase by approximately 12 and 10 percent, respectively. The inorganic dissolved solids mass loading is expected to decrease by approximately 21 percent due to segregation of the water softener reject from the overall wastewater stream. The RWD states that both the DAF unit and the finger lagoons have sufficient unused treatment capacity to accommodate the increased flows provided that the proposed finger lagoon maintenance program is fully implemented.

Groundwater is generally encountered at approximately 140 feet below the ground surface. Based on recent groundwater monitoring data, the groundwater gradient is generally towards the southwest.

Staff's derivation of certain Discharge Specifications and Provisions contained in this Order and the

companion Cease and Desist Order (CDO) is discussed below.

Discharge Prohibition A.1 and CDO Tasks 1, 6, and 8
Based on wastewater and groundwater monitoring data presented in the RWD, the wastewater discharged to the finger lagoons and Winter Storage Ponds is a designated waste, and the discharge appears to have caused groundwater to exceed the applicable water quality limits for total dissolved solids, sodium, and chloride. Therefore, Discharge Prohibition A.1 prohibits the discharge of designated waste to any wastewater structure or pond after 30 August 2009 unless that structure is exempt from Title 27 or constructed to comply with Title 27. Additionally, the CDO requires compliance with Title 27 and sets forth a reasonable time schedule for planning, design, and completion of facility improvements to ensure that the compliance deadline is met. CDO Task 6 requires that the Discharger submit a *Title 27 Compliance Report* that describes a specific scope for planning, design and construction. CDO Task 8 requires the Discharger to submit a *Report of Waste Discharge* that includes a design for the improvements, and CDO Task 1 requires that the Discharger fully comply with Prohibition A.1 and submit a report certifying compliance by 30 August 2009.

Discharge Specification B.4 and Provision H.1.b
Based on monitoring data obtained in 2004, the finger ponds' treatment performance is variable. BOD removal varied from –330 to 60 percent; ammonia nitrogen removal varied from –244 to 65 percent; and TKN removal varied from 0 to 65 percent. The negative removal values may result from periodic overloading, climactic conditions, or a combination of the two. The RWD states that improved maintenance, such as more frequent pond cleaning, could increase the BOD removal rate to as much as 50 percent. Because both BOD and nitrogen loading rates will increase as the facility expands, it is appropriate to require that the wastewater pre-treatment systems be operated to maximize treatment of wastewater and optimize the quality of the discharge, as required by Discharge Specification B.4.

In order to ensure that the Discharger operates and maintains the finger lagoons consistent with that requirement, Provision H.1.b requires that the Discharger submit and implement an Operation and Maintenance Plan that describes in detail the proper operation of the finger lagoon wastewater treatment system and procedures and recommended frequency for pond cleaning to ensure optimal treatment of the wastewater

Land Application Area Specification D.4
Loading limits for BOD are needed because excessive loading can deplete soil oxygen and cause anaerobic conditions. Anaerobic degradation of organic matter can cause severe nuisance odors and promote incomplete biodegradation, thereby allowing dissolved organic material to percolate through the unsaturated zone into groundwater. Anaerobic decomposition of organic wastes also causes reducing conditions and creates organic acids that can decrease soil pH. Reducing conditions and/or a low pH environment can cause excessive leaching of metals in the soil into underlying groundwater.

This Land Application Area Specification prescribes a maximum BOD loading of 200 lb/ac on any one day, and 100 lb/ac/day as a cycle average. Both loading limits are readily achievable based on information provided in the RWD. Compliance with this requirement should provide adequate time for oxidation and infiltration between irrigation events to prevent odors due to putrefaction.

Land Application Area Specifications D.5 and D.10 and CDO Tasks 2, 5, and 9
Loading limits for nitrogen are needed to protect groundwater quality. The Discharger's wastewater currently contains high concentrations of nitrogen, primarily in the form of ammonia. Assuming no ammonia volatilization occurs after the DAF unit, total nitrogen loading rates are approximately 2,700 pounds per acre per year, which is significantly higher than the agronomic rate for the pasture grasses currently grown. Based on the low concentrations of nitrate in groundwater, the RWD suggests that site conditions and operational practices promote denitrification that may decrease plant available nitrogen by up to 70 percent. However, because groundwater is relatively deep and there is only one recently installed well to monitor groundwater beneath the pasture, it is premature to conclude that such is the case.

Therefore, Land Application Area Specification D.5 states that the total nitrogen loading to each land application area irrigation check shall not exceed the agronomic rate for plant available nitrogen (PAN) for the type of crop to be grown, requires that the method for determining PAN be approved by the Executive Officer, and provides a compliance date. Additionally, discharge of high strength waste can cause reducing or acidic soil conditions that dissolve inorganic constituents, posing further threat to groundwater quality. Therefore, Land Application Area Specification D.10 requires that the Discharger maintain the land application areas to prevent exceeding the soil buffering capacity or creating reducing conditions, and provide a compliance date.

The Discharger will not be able to immediately comply with these requirements. Therefore, CDO Tasks 2, 5 and 9 require that the Discharger complete a land application assessment study to determine appropriate PAN loading rates, determine whether nitrogen and other soluble waste constituents are migrating beneath the pasture areas, determine whether soil buffering capacity is being affected by the discharge, and develop a mitigation plan as needed to protect groundwater quality.

Land Application Area Specifications D.1 and D.7 through D.9 and CDO Tasks 3 and 4
Based on limited storm water monitoring performed late in the 2004-2005 rainy season, runoff discharged to Frye Creek from Fields 1, 2, and 3 contained elevated concentrations of several wastewater constituents when compared to background runoff quality. The Discharger's storm water monitoring report concluded that the source of wastewater constituents might be associated with decaying vegetation, livestock waste, and contact with tailwater ditches that drain Fields 1 and 2. The report proposed specific improvements to reduce storm water ponding and improve storm water conveyance system reliability for Fields 1, 2, 4, 5, and 6, and construction of additional berms around Fields 5 and 6 to prevent uncontrolled runoff to other drainage courses.

In order to prevent discharge of contaminated storm water to surface waters, Land Application Area Specifications D.1 and D.7 through D.9 prohibit:

a. Irrigation with wastewater during the rainy season (15 October through 15 April);

b. Irrigation with wastewater within 24 hours before a predicted storm, during precipitation, or within 24 hours after the end of any precipitation event;

c. Standing water in any portion of the irrigation fields more than 24 hours after application of wastewater ceases; and

d. Release of storm water runoff from the designated land application to Frye Creek unless sufficient runoff has been captured and stored such that any runoff discharged to surface waters exhibits waste constituent concentrations that do not exceed those of runoff from adjacent pastureland not irrigated with wastewater

Based on the 2004-2005 storm water monitoring results, further storm water monitoring is needed to determine whether the Discharger's current field storm water management program is adequate to protect surface water quality. Additional improvements may be needed to provide additional storm water detention. Therefore, CDO Task 3 requires that the Discharger submit a 2005/2006 Storm Water Monitoring Report that documents monthly monitoring and analysis of storm water samples during the 2005/2006 rainy season. If appropriate, the report shall include a Storm Water Retention Improvements Plan that specifies physical and/or operational improvements to be fully implemented no later than 30 November 2006 to ensure that contaminated storm water is retained on-site and recycled for irrigation the following year.

Additionally, CDO Task 4 requires that the Discharger submit a Storm Water Retention Improvements Completion Report that documents completion of all improvements described in the approved Storm Water Retention Improvements Plan, as requested by the Executive Officer.

Effluent Limitations
Effluent Limitations for total dissolved solids and total nitrogen are imposed primarily to ensure that the overall waste stream concentrations do not increase. Monthly average concentration limits were established based on monitoring data presented in the RWD, and the Discharger should be able to meet those limits without additional treatment. Weekly monitoring is required for those constituents because the waste character varies with time and monthly grab samples are not adequate to characterize the monthly average concentration.

Provisions H.1.a, H.1.d, and CDO Tasks 7 and 11 through 15
Groundwater monitoring data obtained since November 2003 indicate that background groundwater quality is generally excellent, and that Winter Storage Pond 1 and the former Back Mixing Pond may have caused increases in concentrations of TDS, sodium, chloride, and magnesium. One well was recently installed beneath the irrigated pasture, but data has not yet been submitted. It is appropriate to require continued monitoring and a statistical analysis of groundwater quality to make a formal determination regarding compliance with the groundwater limitations of this Order.

The existing and proposed network is adequate to assess whether groundwater degradation has occurred. However, based on past and projected future nitrogen and salt loading rates for the irrigated pasture, additional monitoring wells are needed to monitor groundwater beneath the pasture areas to define the extent of degradation if degradation is confirmed. Therefore, Provisions H.1.a and H.1.d require that the Discharger construct additional groundwater monitoring wells in accordance with an approved workplan.

Determination of background groundwater quality and a groundwater impacts assessment are required pursuant to CDO Task 7 because, although the facility has operated for over fifty years, there has been no subsurface investigation to assess the site-specific soil and groundwater conditions necessary to determine whether the wastewater management system is adequately protective of water quality. Based on the

outcome of the CDO Task 7 study, the Discharger may be required to perform CDO Tasks 11 through 15, which require definition of the nature and extent of soil and groundwater impacts, completion of a corrective action feasibility study, and (if appropriate) soil and/or groundwater cleanup. These requirements are consistent with the food processing facility assessment and enforcement strategy presented to the Regional Board at its 29 January 2005 meeting. Although rendering activities many not be considered a food processing industry, rendering process wastewater is similar to food processing wastewater in terms of organic strength and salinity, and the Discharger manages its process wastewater in the same way that many food processors do (i.e., treatment and storage in unlined ponds and land application for irrigation and fertilization of corps). Therefore, consistency with the current food processing facility assessment and enforcement strategy is appropriate.

ALO:11/10/05